Demographic Dynamics of Nepal: Key Findings from the National Population and Housing Census 2021

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Abstract

The National Population and Housing Census 2021, conducted by the National Statistics Office (NSO), represents the twelfth nationwide census of Nepal since 1911. Originally scheduled for June 2021 but postponed due to the COVID-19 pandemic, the census was carried out in November 2021, with results officially released in March 2023. This article provides a comprehensive overview of Nepal's demographic dynamics as revealed by the census, highlighting population growth trends, gender distribution, household structures, ecological and provincial demographics, literacy progress, migration, and emerging social dimensions. The results reveal a population of 29,164,578 with an annual growth rate of 0.92 percent, an unprecedented decline in fertility to 1.85 (below replacement level), and accelerated urbanization with two-thirds of the population now living in urban areas, and the first recognition of third-gender individuals. The census findings are presented with statistical tables, charts, and critical analysis, establishing a vital reference point for policymakers, academics, and development practitioners. These demographic shifts are interpreted within Nepal's socio-economic and historical context, underscoring their implications for governance, planning, and sustainable development.

1. Introduction

Population censuses are among the most comprehensive statistical exercises undertaken by any nation. They provide foundational data on demographic, social, and economic characteristics, offering a snapshot of national realities while enabling comparisons across time and space (United Nations Population Fund [UNFPA], 2017). In Nepal, the census tradition dates back to 1911, when the first enumeration was carried out under the Rana regime. Since then, censuses have been conducted decennially, producing critical insights for government, researchers, and planners (CBS, 2012; NSO, 2023).

The 2021 Census, carried out by the National Statistics Office (NSO, formerly Central Bureau of Statistics), is the twelfth in this series. The census is historically significant for three main reasons. First, it was carried out during the global COVID-19 pandemic, which caused delays in enumeration and challenged data collection logistics (Nepal Economic

Forum, 2022). Second, it was the first census following Nepal's federal restructuring in 2015, allowing data to be analyzed by seven provinces and 753 local governments (International Alert, 2023). Third, it was the first census to officially recognize third-gender individuals, a milestone for inclusivity (Panthee, 2022). Due to the COVID-19 pandemic, the enumeration originally planned for June 2021 was

postponed until November 2021, with the official census day designated during that month and the results were published in March 2023.

The results reveal important demographic shifts, including slowing population growth, fertility below replacement level, rapid urbanization, smaller household sizes, and rising recognition of

social diversity. These shifts reflect Nepal's ongoing socio-economic transformation shaped by migration, remittances, educational expansion, and gradual aging (Adhikari, 2020; KC, Upadhyay, & Subedi, 2016). This article reconstructs the key demographic findings from the 2021 Census and situates them within broader historical and policy contexts.

2. Objectives

The primary objectives of this study are:

1. To present a comprehensive overview of Nepal's demographic profile as captured in the National Population and Housing Census 2021, including population size, growth trends, gender composition, age structure, and household characteristics.
2. To examine regional and ecological variations in population distribution, urbanization patterns, and household structures across provinces, ecological belts, and rural–urban areas.
3. To analyze key social indicators such as literacy rates, educational attainment, fertility, migration, and disability status, highlighting emerging demographic and social trends.
4. To assess implications for policy and planning, identifying how updated demographic data can guide national, provincial, and local governance in areas such as resource allocation, infrastructure development, and social welfare programs.
5. To provide a historical perspective of Nepal's demographic transition, situating the 2021 Census findings within long-term trends of population growth, fertility decline, and urbanization.

3. Significance

The significance of this study lies in:

1. Informing evidence-based policy and planning: The updated census data provide essential insights for policymakers, planners, and development agencies to design interventions in health, education, housing, and social services.
2. Understanding demographic transitions: By highlighting slowing population growth, declining fertility, and urbanization trends, the study helps anticipate future challenges, such as aging populations and urban infrastructure demands.

3. Promoting social inclusivity: The 2021 Census marks the first formal recognition of third-gender individuals, reflecting Nepal's progressive stance on gender diversity and emphasizing the need for inclusive social policies.
4. Supporting regional development: Detailed provincial and ecological data reveal disparities that can guide equitable distribution of resources, targeted development programs, and decentralization strategies.
5. Providing a baseline for future research: The findings serve as a reference point for academics, statisticians, and social scientists to monitor demographic trends, migration patterns, and socio-economic changes over time.

4. Literature Review

Population studies and census-based research in Nepal have been fundamental in documenting demographic change, shaping national development policies, and guiding academic discourse. Since the first census of 1911, successive enumerations have provided reliable data on population growth, fertility, literacy, migration, and socio-economic structures (CBS, 2012; NSO, 2023).

Earlier research highlighted Nepal's high fertility rates and rapid population growth during the mid-20th century. For example, the 1981 and 1991 censuses revealed growth rates above 2 percent, raising concerns about food security, urban congestion, and environmental pressures (Subedi, 1996). Scholars connected these demographic shifts to rural-urban migration, labor out-migration, and remittance economies that began to reshape household livelihoods (Suwal, 2001).

The 2011 Census marked a significant demographic shift. Findings showed a slowing growth rate (1.35 percent), declining fertility (2.5), and increased urbanization, with Kathmandu Valley emerging as a demographic hub (CBS, 2012; Thapa & Shrestha, 2014). Studies following this census emphasized the growing feminization of migration, educational gains, and the emerging challenges of aging populations (KC et al., 2016). Literacy improvements, though notable, revealed persistent gender gaps, especially in rural areas and among marginalized groups (UNFPA, 2017).

The 2021 Census continues this demographic transition but introduces new dimensions. Most notably, it formally recognized individuals identifying as a third gender, reflecting Nepal's progressive social and legal recognition of gender diversity (Panthee, 2022). Fertility decline has continued, with the total fertility rate in 2021 at 1.85, which is below the replacement level, signaling the onset of an aging population structure in future decades (Adhikari, 2020)

Urbanization has been a recurrent theme in census-based research. Scholars note that Nepal's urban growth, unlike many developed contexts, is not primarily driven by industrialization but by migration, political restructuring, and expansion of municipal boundaries (Shrestha & Routray, 2013). The 2021 Census confirms that more than two-thirds of the population resides in urban areas, raising concerns about sustainable

infrastructure, resource distribution, and decentralized governance (Nepal Economic Forum, 2022).

In summary, the literature indicates that Nepal's demographic dynamics are shaped by three interconnected processes: (1) declining fertility and slowing population growth, (2) accelerating urbanization and migration, and (3) increasing social diversification through education, gender inclusion, and changing household structures. The 2021 Census both validates these long-term trends and highlights new challenges, including aging, disability inclusion, and persistent regional disparities.

5. Methodology

The methodology for this article is based on the official results of the **National Population and Housing Census 2021**, as published by the NSO. The census followed a **complete enumeration method**, aiming to count every individual and household within Nepal's territory on the census reference date in November 2021. Analysis includes:

1. Descriptive statistics are used to summarize population size, structure, and characteristics.
2. Comparative analysis examines trends across decades by comparing 2021 results with previous censuses, especially 2011.
3. Tabular presentation of data highlights ecological, provincial, and rural–urban variations.
4. Interpretive analysis contextualizes statistical patterns within Nepal's socio-economic transitions, including migration, and federal restructuring.
5. Policy relevance assessment links demographic findings with implications for planning, governance, and sustainable development.

This methodological approach enables a balance between statistical description and critical interpretation, ensuring that numbers are analyzed within their broader context.

6. Historical Perspective of Nepal's Census

Nepal's censuses, conducted every ten years, document a century-long trajectory of demographic change (CBS, 2012; NSO, 2023). As shown in **Table 1,** the country's population has increased steadily from 5.6 million in 1911 to 29.1 million in 2021. Growth rates peaked at 2.62 percent in 1981 but have since gradually declining to 0.92 percent in 2021. Population density rose from 38 persons per km² in 1911 to nearly 198 in 2021, intensifying resource pressures (CBS, 2012).
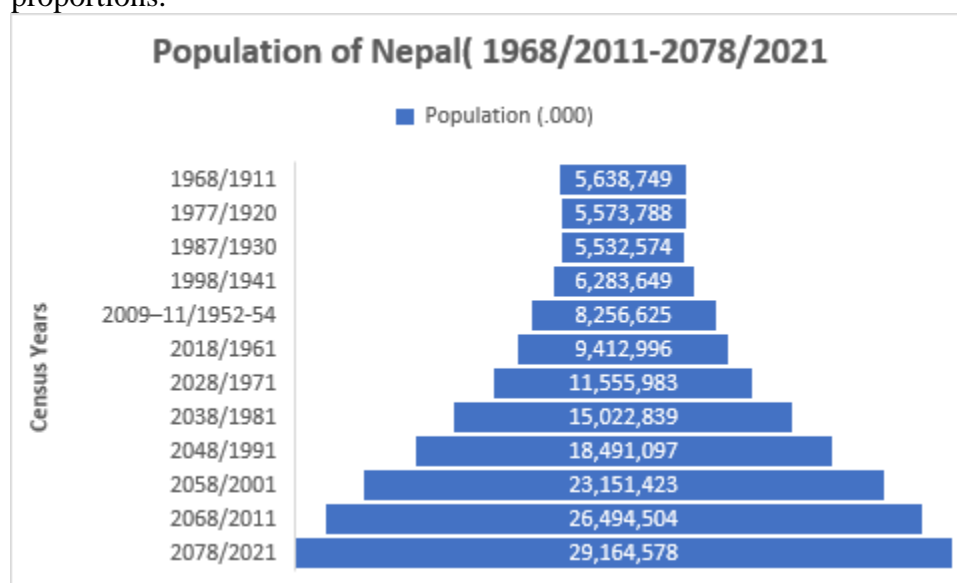
This long-term trajectory reflects declining fertility, migration abroad, and structural shifts in household formation. This historical overview highlights Nepal's demographic transition from rapid expansion to a phase of slower growth, with increasing population density exerting greater pressure on land, resources, and urban infrastructure.

Table 1. Census Results of Nepal (1911–2021)

Census Years (AD/BS)	Population	Annual growth rate (%)	Population Density (Per KM²)
1911/1968	5,638,749	NA	38.22~38
1920/1977	5,573,788	-0.13	37.78~38
1930/1987	5,532,574	-0.07	37.50~38
1941/1998	6,283,649	1.16	42.59~43
1952-54/2009–11	8,256,625	2.27	55.97~56
1961/2018	9,412,996	1.64	63.81~64
1971/2028	11,555,983	2.05	78.34~78
1981/2038	15,022,839	2.62	101.84~102
1991/2048	18,491,097	2.08	125.35~125
2001/2058	23,151,423	2.25	156.94~157
2011/2068	26,494,504	1.35	179.60~180
2021/2078	29,164,578	0.92	197.70~198

Source: NSO: National Population and Housing Census 2021

A Funnel chart represents stages in a process of showing progressively decreasing proportions.

7. Overview of the 2021 Census

7.1 Population Size and Growth

The total population of Nepal increased from 26,494,504 in 2011 to 29,164,578 in 2021, reflecting a net growth of 2.67 million individuals over the decade. The annual growth rate

of 0.92 percent is significantly lower than the 1.35 percent recorded in the previous census (NSO, 2023). Population projections suggest that Nepal's population will reach approximately 31.8 million by 2031.
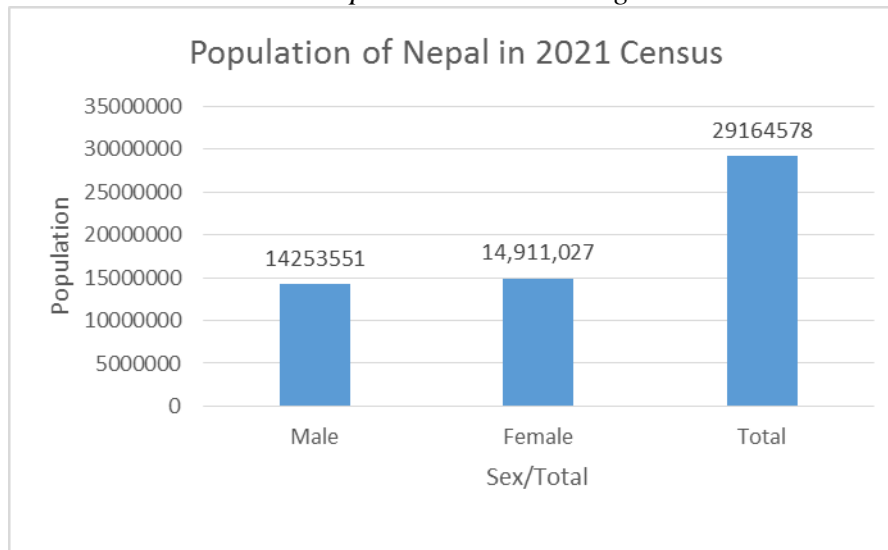
7.2 Gender Composition

As presented in **Table 2**, the 2021 census shows 14,253,551 males (48.87%), 14,911,027 females (51.13%), and 2,928 individuals (0.01%) identifying as other genders (Panthee,2022), however the detail characteristics of the individuals from this community have been counted under male or female category based on their biological attributes. The sex ratio stood at 95.59 males per 100 females, showing a slight improvement compared to 94.16 in 2011.

Table 2

Gender	Population	%
Male	14253551	48.87
Female	14911,027	51.13
Total	29164578	100

Source: NSO: National Population and Housing Census 2021

8. Major Demographic Findings
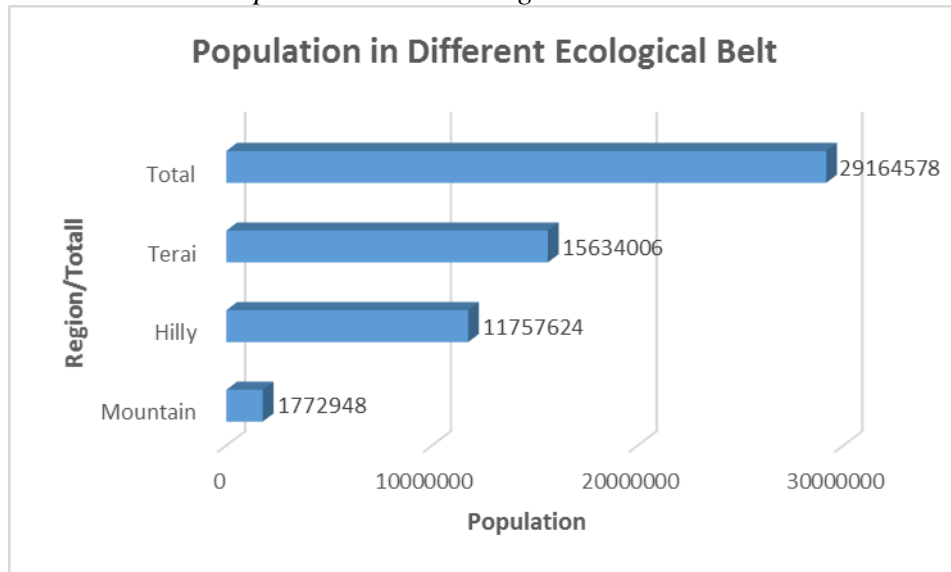
8.1 Population by Ecological Belt

Nepal's ecological diversity continues to influence population distribution. **Table 3** shows that more than half of the population (53.61%) resides in the Terai, while the Hilly region accounts for 40.31 percent and the Mountain region for only 6.08 percent. This uneven

distribution underscores ongoing challenges in service delivery, infrastructure, and development planning across regions.

Table 3

Region	Population	Percentage
Mountain	1772948	6.08
Hilly	11757624	40.31
Terai	15634006	53.61
Total	29164578	100

Source: NSO: National Population and Housing Census 2021
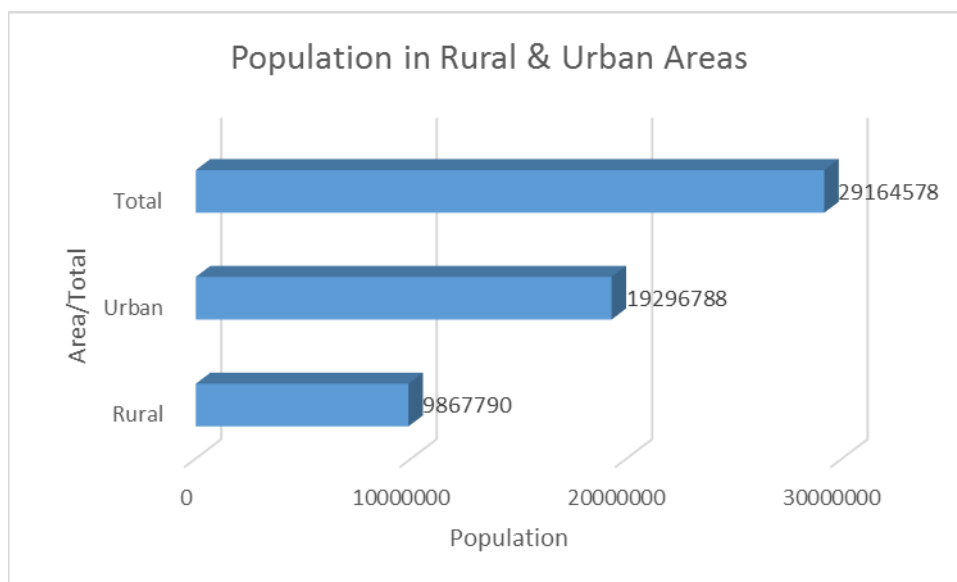

8.2 Rural vs. Urban Population

The census confirms Nepal's accelerating urbanization. As detailed in **Table 4**, two-thirds of the population (66.17%) now live in urban areas, compared to one-third (33.83%) in rural areas. This rapid shift reflects both migration and the expansion of municipal boundaries, consistent with previous urbanization research (Shrestha & Routray, 2013).

Table 4

Area	Population	Percentage
Rural	9867790	33.83
Urban	19296788	66.17
Total	29164578	100

Source: NSO: National Population and Housing Census 2021

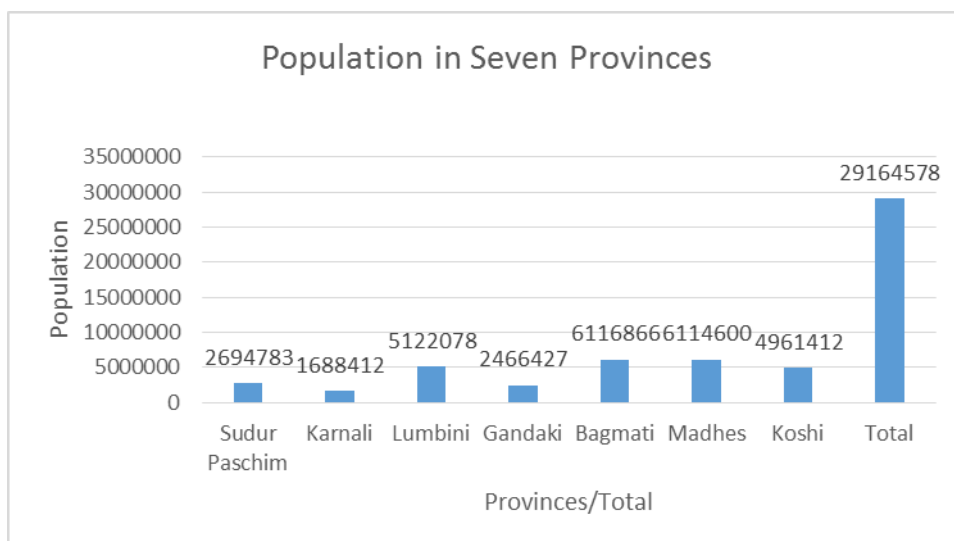Note: This confirms Nepal's accelerating urbanization.

8.3 Population by Provinces

The provincial breakdown in **Table 5** reveals that Bagmati and Madhes provinces together account for 42 percent of Nepal's population. Lumbini and Koshi follow, while Karnali remains the least populated province with just 5.79 percent of the national population. These disparities highlight the need for targeted resource allocation and federal planning.

Table 5

Provinces	Population	Percentage
Sudur Paschim	2694783	9.24
Karnali	1688412	5.79
Lumbini	5122078	17.56
Gandaki	2466427	8.46
Bagmati	6116866	20.97
Madhes	6114600	20.97
Koshi	4961412	17.01
Total	29164578	100.00

Source: NSO: National Population and Housing Census 2021

8.4 Households and Household Size

The total number of households reached to 6.66 million in 2021, up from 5.43 million in 2011. The average household size declined to 4.37 persons from 4.88.
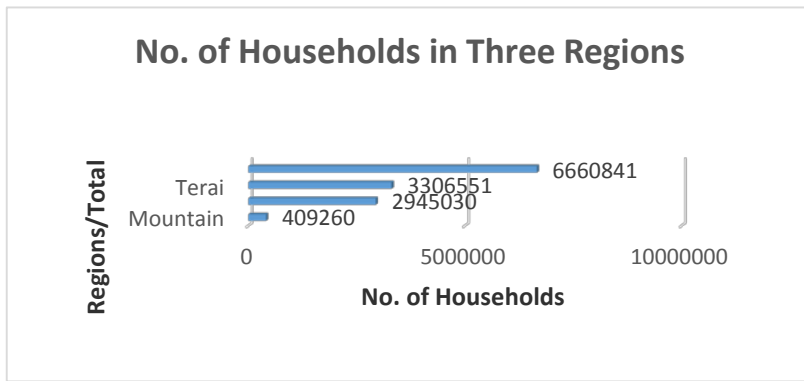
8.5 Household Size by Ecological Belt

As shown in **Table 6**, the Terai region has the largest share of households, followed by the Hilly and Mountain regions. Average household size declined to 4.37 persons, continuing a trend toward smaller families.

Table 6

Region	No. of Households
Mountain	409260
Hilly	2945030
Terai	3306551
Total	6660841

Source: NSO: National Population and Housing Census 2021
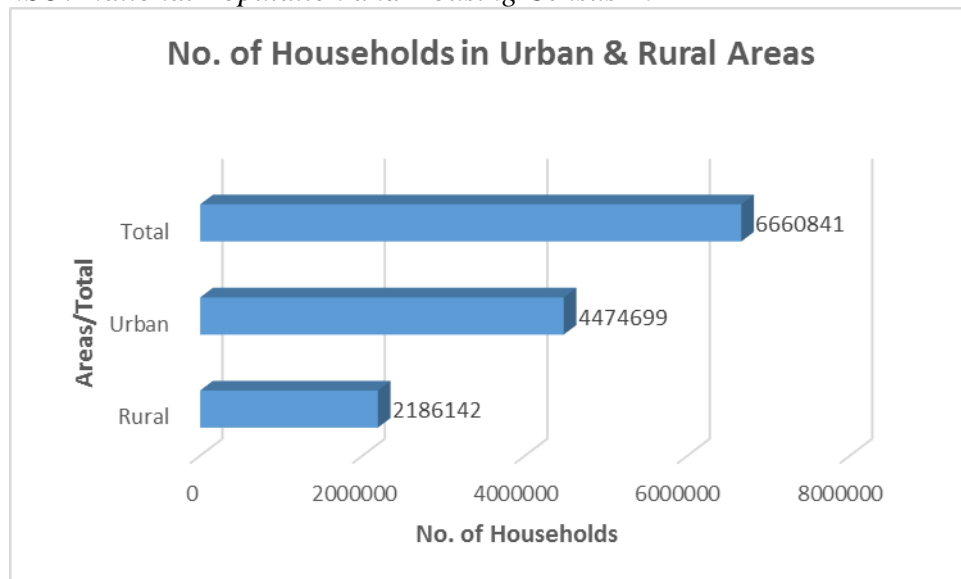
No. of Households in Three Regions

8.6 Rural and Urban Household Size

Table 7 indicates that 67 percent of households are located in urban areas, reflecting Nepal's demographic shift toward cities. Smaller household sizes in urban areas compared to rural ones further illustrate changing social and economic structures.

Table 7

Area	No. of Households
Rural	2186142
Urban	4474699
Total	6660841

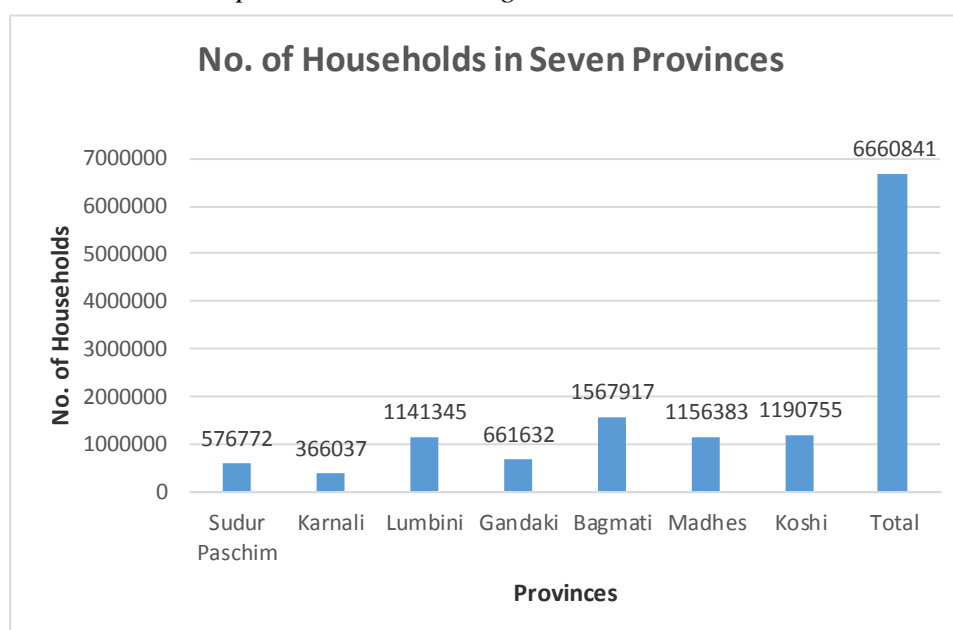*Source: NSO: National Population and Housing Census 2021*

8.7 Household Size by Provinces

As presented in **Table 8**, Bagmati Province has the largest number of households (1.57 million), followed by Koshi and Lumbini. Karnali Province, consistent with its low population size, has the smallest number of households (366,037).

Table 8

Provinces	No. of Households
Sudur Paschim	576772
Karnali	366037
Lumbini	1141345
Gandaki	661632
Bagmati	1567917
Madhes	1156383
Koshi	1190755
Total	6660841

Source: NSO: National Population and Housing Census 2021

9. Additional Findings

9.1 Population by Age Group

In 2021, 61.96% of Nepal's population falls within the working-age group (15–59 years), up from 56.96% recorded in 2011. This expanding working-age cohort represents a demographic dividend that can potentially contribute to economic growth, provided there is adequate employment and skill development. Children below 14 years constitute 27.83% of

the population, indicating a moderate decline compared to the previous census, which signals reduced fertility and a slower growth rate. The elderly population (60 years and above) make up 10.21%, signaling gradual population aging. This shift underscores the need for policies that balance workforce development with social protection and healthcare provisions for the elderly.

9.2 Districts with Highest and Lowest Population

The 2021 Census reveals significant variation in population distribution across districts. Kathmandu (2,041,587) remains the most populous district, followed by Morang, Rupandehi, Jhapa, and Sunsari. The concentration of population in these districts highlights their role as major urban, administrative, and economic centers, which attract both internal migrants and local populations due to employment opportunities, infrastructure, and services. Manang has the lowest population (only 5,658), alongside Mustang, Dolpa, Rasuwa, and Humla These low-density districts, mostly situated in the Mountain region facing the challenges related to service delivery, infrastructure development, and economic inclusion, emphasizing the need for targeted regional development strategies to reduce disparities.

9.3 Literacy Rate

Nepal has made significant strides in improving literacy over the last decade. The overall literacy rate increased from 65.9% in 2011 to 76.2% in 2021. Male literacy improved from 75.1% to 83.6%, while female literacy rose from 57.4% to 69.4%. Despite this progress, gender gaps and rural-urban inequalities persist, suggesting that targeted interventions are required to ensure equitable access to education for women and girls. Improvements in literacy are closely linked to broader social and economic development, as they enhance employability, civic participation, and health awareness.

9.4 Population by Education Level

In 2021, among literates, 28.7% have primary education (class 1-5), 19.9% lower secondary education (class 6-8), 9.5% S.E.E. (formerly S.L.C.) or equivalent. A significant proportion, 19.5%, have completed higher secondary or tertiary education above the S.E.E. level. These patterns show gradual progress toward higher education but also highlight the need for continued efforts to expand secondary and higher education expansion, particularly in underdeveloped districts and among marginalized populations.

9.5 Fertility and Age Structure

Nepal's total fertility rate has continued its downward trend, declining from 2.516 in 2011 to 1.853 in 2021, below the replacement level of 2.1 children per woman. This decline is indicative of changing reproductive behaviors, increased use of family planning, and socio-economic development, and it has contributed to the reduced proportion of the population aged below 14. This shift reduces the child population, expands the working-age group, and signals future aging challenges.

9.6 Migration and Absentee Population

A total of 2,190,592 individuals were reported as absent from the country and living abroad in 2021. Among them, males significantly outnumber females, accounting for 82.2% of the absentee population. This gendered pattern of international migration reflects labor migration trends, with men predominantly seeking employment opportunities abroad. Migration supports remittances but reduces domestic labor supply, and socio-economic development, underscoring the need for migrant-focused policies that support for both migrant and their families.

9.7 Disability Status

The 2021 Census indicates that approximately 2.2% of the population reported having one or more forms of disability, slightly higher than the 1.94% reported in 2011. This increase may reflect improved identification and reporting mechanisms, greater societal awareness, or an actual rise in disability prevalence. The data highlight the necessities of inclusive policies in health, education, and employment to support persons with disabilities.

9.8 Decreasing Fertility

The continued decline in fertility, from 2.516 in 2011 to 1.853 in 2021, is a notable demographic trend with significant implications. The sharp fertility decline drives slower growth, a larger working-age share, and an expanding elderly population. Policymakers must consider these trends in planning for healthcare, education, employment, and social protection to optimize the demographic dividend and prepare for a future aging society.

10. Key Points of the 2021 Census
- Slowing population growth (0.92%).
- First time inclusion of Population by Provinces.
- Declining fertility rates.
- Increasing urbanization and declining household size.
- Rising literacy with persistent gender gaps.
- Inclusion of third-gender individuals for the first time.
- Regional disparities in growth, density, and socio-economic conditions.

11. Recommendations

Based on the findings of the National Population and Housing Census 2021, the following recommendations are proposed to guide policy, planning, and research:

1. **Address Urbanization Challenges:** With two-thirds of the population residing in urban areas, there is a need for sustainable urban planning, including adequate housing, transport infrastructure, water and sanitation systems, and employment opportunities. Municipalities should be strengthened to manage rapid urban growth effectively.

2. **Promote Inclusive Social Policies:** The formal recognition of third-gender individuals highlight the need for inclusive policies and programs addressing the rights and welfare of marginalized populations. Efforts should be made to reduce persistent gender gaps in education, health, and employment.

3. **Strengthen Regional Development:** Significant provincial and ecological disparities in population distribution and household characteristics call for targeted interventions. Development resources and services should prioritize underpopulated and remote regions such as Karnali and Mountain areas to ensure equitable growth.

4. **Plan for Aging Populations:** The continued decline in fertility and increasing proportion of elderly individuals suggest an impending demographic shift. Policies should focus on healthcare infrastructure, social security, and programs for the elderly to manage future aging-related challenges.

5. **Enhance Data Collection and Research:** Future censuses should continue improving data granularity, particularly concerning migration patterns, absentee populations, disability status, and socio-economic indicators. This will facilitate evidence-based policymaking and allow researchers to monitor trends over time.

6. **Invest in Education and Literacy:** While literacy rates have improved, regional and gender disparities persist. Targeted educational programs, especially in rural areas and for women, are essential to achieve equitable literacy and educational attainment across the nation.

12. Conclusion

The National Population and Housing Census 2021 underscores Nepal's ongoing demographic transition characterized by slower population growth, declining fertility, increasing urbanization, and rising literacy rates. These changes reflect broader social and economic transformations, including evolving household structures, regional disparities, and growing recognition of gender diversity.

The census findings provide an essential evidence base for policymakers, planners, and development agencies to design interventions across sectors such as health, education, infrastructure, and social welfare. They also offer valuable insights for future research, highlighting the importance of continuous monitoring of population dynamics, migration trends, and socio-economic inequalities.

In conclusion, the 2021 Census not only documents Nepal's current demographic status but also serves as a strategic tool to guide sustainable development, inclusive governance, and equitable resource allocation in the decades ahead.

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